# A Farewell to B-Lines: Ageing and Disappearance of Ultrasound Artifacts as a Diagnostic Tool

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Dear Editor,

We read with great interest the accurate study by Ciccarese et al. [1], which elegantly demonstrates the possible diagnostic pitfalls inherent in the use of B-line ultrasound (US) artifact count if the age of patients is not taken into account. According to their investigation, a specific diagnosis of any pulmonary condition is not reasonably supported on the basis of this criterion, because the measure of B-line number is erratic, as pointed out by others [2], subject to very severe inter- and intraobserver bias [3] and now, thanks to the study just published, strongly depending on the age of the observed patient [1]. Their experience is in agreement with the practice of most echo laboratories. We wish to add that the current work-up of our patients includes, as a daily practice, also the indication of the US pleural line thickness. Actually, its increase and irregularity is associated with pleura-pulmonary disease and, particularly, with lung fibrosis [4]. In accordance with Ciccarese et al.'s [1] study, we wondered if also pleural line thickness depends on the age of the patients, similarly to the number of B-line artifacts; moreover, we challenged the idea that the body mass index (BMI), which we regularly record and which influences several biomedical measures, has any relationship with pleural line thickness.

We assessed 51 consecutive subjects (8 female, 43 male), aged 18–84 (55.76 ± 16.386) years, without pleura-pulmonary disease or heart insufficiency. The number of B-lines, in any chest area, and the number of chest areas with increased number of B-lines raise with age ($r = 0.289$; $p < 0.04$) but not with BMI ($r = 0.036$; $p$ = not significant). It is noteworthy (fig. 1) that also pleural line thickness (average 1.47 ± 0.257 mm) increases with age ($r = 0.524$; $p < 0.01$) and also with BMI ($r = 0.727$; $p < 0.0001$).

Ciccarese et al. [1] very appropriately conclude that 'since the life expectancy is increasing and the use of lung US is spreading, these data should be taken into consideration in daily practice in order to avoid misdiagnoses'. We wish to add that the great variability of measures of lung US artifacts, particularly of B-lines but also of pleural line thickness, is due to many factors, which can be itemized as follows: proper setting of the equipment and features of the probe, inter-/intraobserver variability and subjective bias [5, 6], age of patients. This bias is particularly relevant since difference of age is a commonly present confounding factor and associated with a very wide range of measures of both B-line number and pleural line thickness. We would respectfully ask the authors of this novel and innovative contribution [1] if they think, as we do, that their finding and their investigation are a further very strong argument against the widespread and still warranted use of the measures of B-line artifacts in emergency. In these conditions, the possibility of an inaccurate use of US as an imaging and diagnostic tool increases greatly [7].



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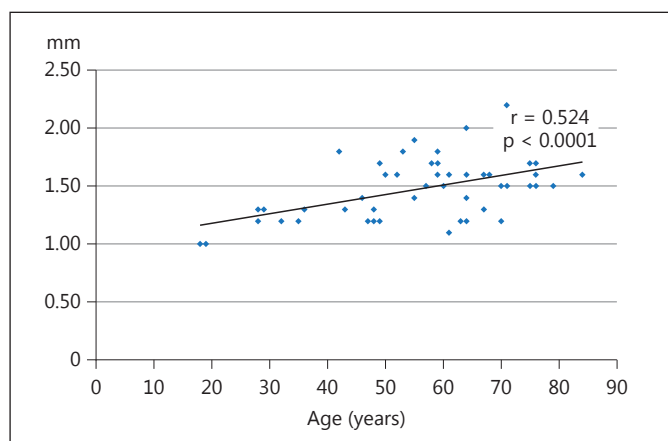
**Fig. 1.** Regression line showing the correlation between age and pleural line thickness in 51 subjects without pleura-pulmonary disease.

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